

CLAIMS

1 1. A steady rest with independent vertical and horizontal adjustments,
2 comprising:

3 a base;

4 an actuating member movable along a first axis toward a
5 work piece position that is moveable either vertically or horizontally;

6 a body slidably mounted on the base and having a first guide
7 slot disposed at a first angle with respect to said first axis, and a second guide
8 slot disposed at a second angle with respect to said first axis, and means
9 connecting the body to the actuating member for movement along said first axis;

10 a first arm slidably movable in the first guide slot along a
11 linear path of motion between a clamping position, and a release position along a
12 second path of motion between a clamping position and a release position;

13 a second arm slidably movable in the second guide slot;

14 a first workpiece gripping member pivotally mounted on the
15 first arm;

16 a second workpiece gripping member pivotally mounted on
17 the second arm;

18 a third workpiece gripping member mounted on the body, so
19 as to be moveable therewith;

20 a first gripping pad pivotally mounted on the first arm;

21 a second gripping pad spaced from the first gripping pad
22 pivotally mounted on the second arm;

23 a third gripping pad mounted on the body;
24 the actuating member being connected to the first arm for
25 movement in a first stroke, and the second arm for movement in a second stroke
26 along their respective paths of motion;
27 cam means deposited between the actuating member and the
28 first arm and the second arm for moving the first arm and the second arm toward
29 their respective clamping position on the actuating member is moved in a first
30 direction, and for moving the first arm and the second arm toward their respective
31 release positions as the cam member is movable in a reverse direction,
32 whereby a rotating workpiece may be gripped between the
33 first, the second and the third new pads in which the axis of rotation of the
34 workpiece is in a first workpiece position;
35 the body having a first camming opening, and a second
36 camming opening spaced from the first camming opening;
37 a first camming plate slidably mounted in the first camming
38 opening for movement in a direction normal to said first axis, as the actuating
39 member moves the body along said first axis;
40 a second camming plate slidably mounted in the second
41 camming slot for movement in a direction normal to said first axis, as the
42 actuating member moves the body along said first axis;
43 the first camming plate having a third camming opening;
44 the second camming plate having a fourth camming
45 opening;

46 a first camming structure carried on the first arm and
47 received in the third camming slot so as to be movable in a first camming motion
48 as the actuating member is moving the body along said first axis;

49 first adjusting structure mounted on the body and connected
50 to the first camming plate to adjust the path of motion of the first arm either
51 horizontally or vertically;

52 a second camming structure carried on the second arm and
53 received in the fourth camming slot so as to be movable in a second path of
54 motion as the actuating member is moving the body along said first axis; and

55 second adjusting structure mounted on the body and
56 connected to the second camming plate to adjust the path of motion either
57 horizontally or vertically.

1 2. A steady rest as defined in claim 1, and in which the actuating
2 member applies a constant bias on the first arm in their respective clamping
3 positions.

1 3. A steady rest as defined in claim 1 in which the first and second
2 adjusting structures are threaded members threadably mounted on the body.

1 4. A steady rest as defined in claim 1, and in which the actuating
2 member is hydraulically actuated.

1 5. In a workpiece gripping apparatus, a combination comprising:
2 a base;
3 a body slidably mounted on the base;
4 a first clamping arm slidably mounted on the base along a
5 first linear path of motion between a clamping position, and a release position;
6 a second clamping arm slidably mounted on the base
7 adjacent the first clamping arm along a second linear path of motion parallel to
8 the first path of motion of the first clamping arm, between a clamping position,
9 and a release position;
10 the first clamping bar having a camming slot disposed at an
11 acute angle with respect to the linear path of motion of the first clamping bar;
12 the second clamping bar having a camming slot disposed at
13 an acute angle with respect to the linear path of motion of the second clamping
14 bar;
15 actuator means and means supporting the actuator means
16 for movement along an axis and either toward a workpiece position or away from
17 the workpiece position;
18 a camming means disposed in the body and convention
19 between the actuator member and the first arm and the second arm for moving
20 then along their respective linear paths of motion toward their respective
21 clamping positions as the camming means is moved in an actuating motion, and
22 for moving the clamping bars toward their respective release positions as the
23 camming means is moved in reverse motion; and

24 a first workpiece gripping member pivotally mounted on the
25 first clamping arm, and a second workpiece gripping member on the second
26 clamping arm for engaging a rotatable workpiece as the clamping arms are urged
27 toward their respective clamping positions.

1 6. A steady rest apparatus as defined in claim 1, in which the
2 workpiece gripping members each comprise a wear pad.

1 7. A steady rest as defined in claim 1, in which the first workpiece
2 gripping member is spaced from the second workpiece gripping member, and the
3 first and second workpiece gripping members are disposed on opposite sides of
4 the axis of rotation of the workpiece.

1 8. A steady rest as defined in claim 1, including a piston and cylinder
2 actuator for moving the third clamping member toward or away from the
3 workpiece.
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